

**Advanced technical ceramics - Ceramic composites -
Methods of test for reinforcements - Part 5:
Determination of distribution of tensile strength and of
tensile strain to failure of filaments within a
multifilament tow at ambient temperature**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1007-5:2010 sisaldab Euroopa standardi EN 1007-5:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.04.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 17.03.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 1007-5:2010 consists of the English text of the European standard EN 1007-5:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.04.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 17.03.2010.

The standard is available from Estonian standardisation organisation.

ICS 81.060.30

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English Version

Advanced technical ceramics - Ceramic composites - Methods
of test for reinforcements - Part 5: Determination of distribution
of tensile strength and of tensile strain to failure of filaments
within a multifilament tow at ambient temperature

Céramiques techniques avancées - Céramiques
composites - Méthodes d'essais pour renforts - Partie 5:
Détermination de la distribution de la résistance en traction
et de la déformation de traction à la rupture des filaments
dans un fil à température ambiante

Hochleistungskeramik - Keramische Verbundwerkstoffe -
Verfahren zur Prüfung der Faserverstärkungen - Teil 5:
Bestimmung der Verteilung von Zugfestigkeit und
Zugdehnung von Fasern im Faserbündel bei
Raumtemperatur

This European Standard was approved by CEN on 13 February 2010.

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Contents

	page
Foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Terms and definitions.....	4
4 Principle.....	6
5 Significance and use.....	6
6 Apparatus.....	6
6.1 Tensile testing equipment.....	6
6.2 Load train.....	6
6.3 Data recording.....	7
7 Test specimens.....	7
7.1 General.....	7
7.2 Window type specimen.....	7
7.3 Cylindrical end type specimen.....	8
8 Test specimen preparation.....	8
8.1 General.....	8
8.2 Window type specimen.....	8
8.3 Cylindrical end type specimen.....	9
8.4 Number of test specimens.....	9
8.5 Determination of the initial cross sectional area.....	9
8.6 Determination of the gauge length.....	10
9 Testing technique.....	10
9.1 Test specimen mounting.....	10
9.2 Selection of strain rate.....	10
9.3 Measurement.....	11
9.4 Determination of load train compliance.....	11
9.5 Test validity.....	11
10 Calculation of results.....	11
10.1 Calculation of the parasitic load train compliances.....	11
10.2 Determination of true origin.....	12
10.3 Construction of envelope curve and determination of instantaneous compliance $C_{t,j}$	12
10.4 Probability of filament rupture.....	13
10.5 Distribution of filament strain.....	13
10.5.1 Calculation of filament strain.....	13
10.5.2 Distribution of filament strain.....	13
10.6 Distribution of filament strength.....	14
10.6.1 Initial cross sectional area.....	14
10.6.2 Elastic modulus (Young's modulus) of the tow.....	14
10.6.3 Calculation of filament strength and filament strength distribution.....	15
10.7 Average filament rupture strain and average filament rupture strength.....	15
10.8 Overall average filament rupture strain and overall average filament rupture strength.....	15
10.9 Calculation of tow strength.....	16
11 Test report.....	16
Bibliography.....	18

Foreword

This document (EN 1007-5:2010) has been prepared by Technical Committee CEN/TC 184 “Advanced technical ceramics”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1007-5:2003.

EN 1007 *Advanced technical ceramics — Ceramic composites — Methods of test for reinforcements* has 7 parts:

- Part 1: *Determination of size content*
- Part 2: *Determination of linear density*
- Part 3: *Determination of filament diameter and cross-section area*
- Part 4: *Determination of tensile properties of filaments at ambient temperature*
- Part 5: *Determination of distribution of tensile strength and of tensile strain to failure of filaments within a multifilament tow at ambient temperature*
- Part 6: *Determination of tensile properties of filaments at high temperature*
- Part 7: *Determination of the distribution of tensile strength and of tensile strain to failure of filaments within a multifilament tow at high temperature*

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1 Scope

This European Standard specifies the conditions, apparatus and procedure for determining the distribution of tensile strength and tensile strain to failure of ceramic filaments in multifilament tows at ambient temperature.

This European Standard applies to tows of continuous ceramic filaments, which are assumed to act freely and independently under loading, and behave linearly elastic up to failure.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1007-2, *Advanced technical ceramics — Ceramic composites — Methods of test for reinforcement — Part 2: Determination of linear density*

CEN/TR 13233:2007, *Advanced technical ceramics — Notations and symbols*

ISO 10119, *Carbon fibre — Determination of density*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TR 13233:2007 and the following apply.

3.1

gauge length

L_0

initial distance between two reference points on the tow

NOTE Usually the gauge length is taken as the distance between the gripped ends of the tow.

3.2

initial cross sectional area

A_0

sum of the cross sectional areas of all the filaments in the tow

3.3

tow elongation

ΔL

increase of the gauge length between the two reference points on the tow

3.4

tow strain

ε

ratio of the tow elongation ΔL to the gauge length L_0

3.5

tow maximum tensile force

F_{tow}

highest recorded tensile force on the test specimen when tested to failure